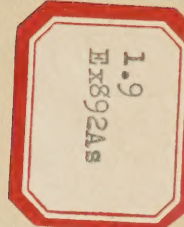


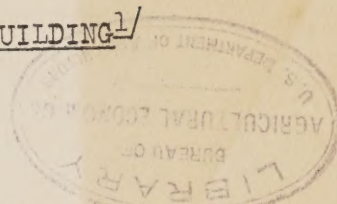
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UNITED STATES DEPARTMENT OF AGRICULTURE  
Extension Service, C. W. Warburton, Director,  
Office of Cooperative Extension Work, C. B. Smith, Chief,  
Washington, D. C.

THE ASSEMBLING AND UTILIZING OF ECONOMIC MATERIAL IN PROGRAM BUILDING<sup>1/</sup>

By H. M. Dixon, Extension Economist, Farm Management,  
Extension Service, U. S. Department of Agriculture.



I am glad of this opportunity to meet with the Poultry Science Association members and especially with those associated with poultry extension work. Farm-management specialists, the same as other subject-matter workers, recognize their twofold responsibility of not only making their own project efficient but also of so relating it to the other extension activities as to make the full Extension Service program the most effective or efficient. In order to do this, we realize the importance of close and continuous contact with the other subject-matter workers. My purpose today, therefore, will be to set forth our program relating to the poultry industry, and I desire your suggestions both in regard to what is presented and what additional things your experience suggests that we might be doing.

Our Object in Poultry Work

Our objective in poultry extension work is exactly the same as with other commodities or with any system of farming -- the type of program and kind of information of most use to the farmer in obtaining the maximum net returns. If this objective is to be attained, perhaps we will agree that it requires a combination or relating of the economic and production activities.

Some Changes Taking Place

When we consider the changes taking place in the poultry industry, we find a wider spread in returns between the high and the low profit farms, a greater appreciation of the income possibilities of poultry on the general farm, increased attention to quality production and methods of marketing, and increased use of scientific feeding and management practices in poultry farming. There is also a changed relationship between egg and poultry prices and relatively lower fall and winter egg prices.

While eggs are produced on 9 out of every 10 farms in the United States, the bulk of the production is governed mainly by the extent of grain and livestock farming and by the opportunities for specialized poultry farming. For these reasons the bulk of the production is in the Middle West and along the Pacific and Atlantic coasts. The areas of specialized egg production in the far Western States show rapid growth in recent years. More than 4,900 carloads of eggs were shipped from the three far Pacific Coast States in 1928. About one-half of them went to

<sup>1/</sup> Paper given at Poultry Science Association Meeting, Auburn, Ala., August 23, 1929.





New York, although 30 States obtained some eggs from this area. A comparison of the available facts shows that high quality and uniformity of product, seasonal production to better meet demand, coupled with other low-cost practices in production and marketing, were the factors contributing to their success. When we compare the Southern States with the far West in 1925, we find that even though the South has three times as many chickens as the far West their production per bird is much less, so that their total production is not largely in excess of production in the Western States. These few facts are cited as indicative of the large regional as well as local and individual problems involved in successful poultry farming.

#### Subject Matter and Specialist Available in States

I realize fully that poultry specialists are working closely with the farm-management specialists in some States and thereby not only have in mind the available economic facts that govern the development of the poultry industry but also use these facts in their work. It is only natural, however, because of the wide difference in amounts and kinds of economic research available in different States, that there is a wide variation in the kinds and amounts of available facts regarding the economics of poultry production. In addition to this, there are wide differences from State to State in the numbers of farm-management or other economic specialists. To meet present-day demands with the most effective type of program, we recognize the need of a farm-management specialist for each 15 counties per State. I merely mention this for the benefit of some of you who may come from States that are not able to give you all the help in this field that you would like.

#### The Farm-Management Program with Poultry

I am going to exemplify some of the facts available and the methods of work in some States. I realize that we have a big problem of preparing economic facts in as good form for extension as, for example, Mr. Billings of Minnesota has done with information on turkey production in his bulletin entitled "Talking Turkey". I realize also, as I go over the information which you poultryman are using in extension work, that you have gone as far if not farther than any other group in this matter of definiteness of suggestions or recommendations. I wish to commend you upon this. The farm-management group are working toward the same goal in so far as possible.

In a more definite consideration of the farm-management program relating to the poultry industry, I would say that we approach the subject with three kinds of facts:

1. Facts regarding the industry as a whole and its relationship to other farming industries, local or regional.
2. Facts regarding the organization of the farm business as a whole to give the highest-profit combinations of land, labor, and materials.
3. Poultry-management studies to determine the efficient practices and to vitalize their importance singly and relatively.





### Outlook and Other Timely Economic Information

The first approach has to do with both the immediate and long-time trends in production, prices, and related factors. It includes aiding farmers in a better understanding of the fundamental principles which determine prices and a better knowledge of the present economic situation regarding the poultry enterprise with reference to supply and demand and the place of poultry in the locality.

As an example of some of the available facts that are helpful in this connection, your attention is called to a set of charts recently assembled by the Bureau of Agricultural Economics. This series of 25 charts dealing with the problem of when to produce and how much are in booklet form. They are available by applying to the Bureau and are entitled "Poultry and Egg Outlook Charts with Explanations".

Other sources of information include the poultry and egg-outlook reports, the monthly agricultural situation reports, and the bulletins, special reports, or releases prepared and available from the State colleges and the Federal Bureau of Agricultural Economics. The poultry industry demands the continuous dissemination of economic information to a greater extent than for many other enterprises.

As an example of how States supplement the national facts and figures, your attention is called to the poultry leaflets from the Ohio agricultural extension service, one based upon "Facts Regarding the Trends in Poultry and Egg Production" and the other on "Facts About Egg Prices". In addition to these leaflets, much poultry information is included in a monthly pamphlet distributed in that State entitled "Timely Economic Information for Ohio Farmers". At a timely period of the year they hold poultry meetings where the following subjects are considered:

1. The distribution of the poultry industry throughout the United States.
2. The trends in egg and poultry production.
3. The variations in egg and poultry prices from year to year.
4. Seasonal price changes.
5. The effect of large or small cold-storage holdings.
6. The position of Ohio as an egg-producing State.

The two leaflets are given out at these meetings. This project has been going four years. Last year a total of 28 counties were reached with 42 such meetings.

The other activities previously enumerated as numbers two and three have to do with facts regarding the internal organization and operation phases of the farm.





### Farm Organization and Farm Accounts

In order for farmers to obtain the most benefit from the outside facts regarding outlook and other timely economic information, they must be able to think their own problems through clearly. On most farms this can best be accomplished through the keeping of records to enable a careful analysis of the business each year.

To meet this need, farm-management extension leaders in most States have prepared farm-account books and in cooperation with county agents are having 30 to 50 of them kept and analyzed each year in a county. While the goal toward which several States are headed with the record work is to have this number in each organized county, others aim to have at least one county carrying this work in each type of farming area of the State.

The farm-account analysis reports prepared in Illinois are excellent examples of the tremendous amount of valuable information the analysis of such records discloses. You may be interested in obtaining from Illinois a copy of one of their annual county farm-business reports. Some of the reports as, for example, the one from Henry County, have been continued over several years. While reports for one year are valuable, those over several years are much more valuable for analysis purposes. For Henry County, 45 records were analyzed for 1925, 59 in 1926, and 60 each in 1927 and 1928. For each of the four years beginning with 1925 the gross income per farm was as follows: \$6,154, \$4,933, \$4,884, \$4,875. The poultry income per farm for each of these same four years was \$291, \$275, \$286, and \$349.

For 1928 the egg sales from the 60 farms averaged \$184 and the poultry sales \$165 per farm. For the 20 most profitable farms the egg sales were \$288 and the poultry \$192. For the 20 least profitable farms the egg sales averaged \$133 and the poultry \$172.

Since the relative importance of poultry to the whole farm business varies widely from area to area, no further analysis of this particular report is necessary here. The fact is that we now have similar reports for many areas and hope some day to have such facts available for every type of farming area in the United States. It is this type of data that helps the county agent to true up his full program and emphasize the different activities in relation to their importance.

### Poultry-Management Studies

Now the third activity -- that regarding the use of poultry-enterprise records in making management studies -- is a type of work





quite closely associated and conducted with your program. A large amount of poultry-account work has been done by you alone in some States, and, so far as I know, in every State where the farm-management specialist has this as one of his projects, it is conducted jointly with you. I suppose more records are kept on poultry throughout the United States than on any other single enterprise. There is, however, large opportunity in showing many of those now keeping some records how to keep more complete records and use them in making improvements.

I have been greatly impressed with the advancement made in some of the States in poultry-management studies of records kept by farmers, and I wonder if the results of such work have not been sufficient to warrant farm-management and poultry specialists in a number of States to strengthen this work. I wonder if we have not about reached the stage in the development of this important work where a little more concerted effort could be placed on the problem of getting records kept that are sufficiently complete to enable more of these analysis studies of the poultry industry as a unit. Also if more concerted effort could be placed on getting sufficient numbers of them kept within an area or county and over a sufficient period of years to make the analysis of most value. While only a few records have value enough to make a sound management analysis, surely they have sufficient additional value in certain areas to warrant the effort. Perhaps the same numbers for enterprise records as for farm records (30 to 50 in a county program) would fit the conditions in most counties.

#### The Poultry-Record Book

Several States have developed blanks or poultry-record books of sufficient completeness to make these analyses. I am going to call attention here to the one from California. If we note particularly the efficiency factors enumerated on the second page, we get a quick indication of the scope of analysis available from this kind of record. Those wanting to make a more thorough study of this book should apply to the California Extension Service for a copy.





SUMMARY OF POULTRY-MANAGEMENT STUDY  
(Taken from California Poultry-Record Book)

YEAR ENDING \_\_\_\_\_ 19\_\_\_\_ COUNTY \_\_\_\_\_ FARM NUMBER \_\_\_\_\_

EFFICIENCY FACTORS

INCOME		
	TOTAL	PER CENT
	DOLLARS	TOTAL
Market eggs	_____	_____
Hatching eggs	_____	_____
Poultry stock sold	_____	_____
Miscellaneous	_____	_____
Eggs consumed	_____	_____
Poultry consumed	_____	_____
Increase in inventory (stock)	_____	_____
Total	_____	_____

EXPENSES		
Feed	_____	_____
Stock bought	_____	_____
Miscellaneous items	_____	_____
Hired labor	_____	_____
Family labor	_____	_____
Water, taxes, insurance	_____	_____
Interest on investment, 6%	_____	_____
Decrease in inventory (stock)	_____	_____
Decrease in investment (Dep.)	_____	_____
Total	_____	_____

COST OF PRODUCTION		
	PER HEN	PER DOZ.
	DOLLARS	CENTS
Feed cost	_____	_____
Stock bought	_____	_____
Other overhead	_____	_____
Hired labor	_____	_____
Family labor	_____	_____
Water, taxes, insurance	_____	_____
Interest on investment	_____	_____
Decrease in inventory (stock)	_____	_____
Total cost	_____	_____
Gross income	_____	_____
Net Profit or Loss	_____	_____
Flock farm income	_____	_____
Flock labor income	_____	_____

Average No. hens	_____
Total No. eggs laid	_____
Total dozen eggs laid	_____
Average production	_____
Per cent production	_____
Per cent mortality	_____
Culling per cent	_____
Replacement per cent	_____
Per cent added	_____
Per cent pullets	_____
Breeding	_____
Type of house	_____
Kind of floor	_____
Floor space per hen	_____
Lights	_____
Time used	_____
Watts per 100 hens	_____
Type of flock	_____
Total dozen eggs sold	_____
Dozens market eggs	_____
Per cent market eggs	_____
Av. price market eggs	_____
Type of market	_____
Dozens hatching eggs	_____
Per cent hatching eggs	_____
Price of hatching eggs	_____
Per cent No. 1 eggs	_____
Per cent No. 2 eggs	_____
Per cent No. 3 eggs	_____
Years in business	_____
Kind of milk fed	_____
Total lbs. milk fed	_____
Total cost of milk	_____
Cost of milk per cwt.	_____
Cost of milk per hen	_____
Com. or H-M mash	_____
Kind greens fed	_____
Lbs. Greens, 100 hens	_____
daily	_____
Ft. hopper space, 100 hens	_____

GRAIN AND MASH FED

	:Total Lbs.:	Total Cost:	Cost per	Cwt.:	Lbs. per	Hen:	Cost per	Hen:	Cost per	Doz.:
Grain	:	:\$	:	:\$	:	:	:\$	:	:\$	:
Mash	:	:	:	:	:	:	:	:	:	:
Total	:	:	:	:	:	:	:	:	:	:





### Kind of Record Material Given Farmers

As a typical example of the kind of material returned to co-operators and given out to farmers generally in one State, the third annual summary of the poultry-management study in Napa County, California, for 1928 is cited. While only one page of this analysis can be considered here, those of you interested probably can get copies of this full report by applying direct to the California Extension Service.

This study includes 21 records and for comparison these records are averaged in three groups: One group with the low farm income per hen, another with a high farm income per hen, and a third group giving averages for the total number of flocks in the study. Another section is left blank in which the farm adviser copies the figures for each individual record. This enables each cooperator to make a comparison between the figures in his own flock with the high and low farm income flock as well as with the total for all flocks. The records are returned and gone over with each cooperator and the weak points in poultry management pointed out.

An idea of the scope of these studies is indicated by the items of comparison included on this one page of this report.

The labor income per flock averaged \$990.91 for all 21 farms. For the high income group it was \$1,613.42 and the low group \$425. The rate earned per hour of labor averaged 72 cents for all farms, \$1.01 for the high, and 36 cents per hour for the low group.

In the report of the analysis of these records the following questions are raised and answered:

1. Why was there such a wide variation in farm income?
2. What can I do to turn my losses into profits?
3. Will it pay me to produce hatching eggs?
4. What about alfalfa leaf and blossom meal?
5. Can I afford to use all-in-one mash?
6. Should I feed a greater proportion of grain or mash to get the best results?
7. How heavily should I cull?

From these items and others included in the report, we see that a careful study of such a report enables a cooperator to know quite definitely where he can most readily increase the efficiency of his business and how other farmers have been more successful with that part of the business.





POULTRY-EFFICIENCY STUDY

Napa County, California.

January 1 to December 31, 1928.

(This Page Was Taken from the Third Annual Summary  
of Napa County Poultry-Management Study)

Divided on basis of Farm Income per Hen	High Farm Income	Low Farm Income	All Flocks	Your Flock
Number records -----	10	11	21	
Total number hens -----	10,391	11,050	21,441	
Avg. number hens per flock -----	1,039	1,005	1,021	
Gross income per flock (dollar)-	\$4,944.21	\$3,847.16	\$4,346.44	
Total cost per flock -----	4,019.85	3,903.19	3,935.62	
Net profit or loss per flock ---	924.36	-56.03	410.82	
Labor income per flock -----	1,613.42	425.00	990.91	
Farm income per flock -----	1,855.73	687.53	1,243.77	
Number eggs per hen for year ---	159.4	134.6	146.6	
Per cent production -----	43.5	36.8	40.0	
Per cent mortality -----	15.6	19.7	17.7	
Culling per cent -----	27.2	51.8	39.9	
Replacement per cent -----	42.0	62.8	53.3	
Per cent added -----	50.8	48.5	49.5	
Per cent pullets -----	48.9	51.7	50.2	
Floor space per hen (Sq. Ft.) --	3.6	3.4	3.5	
Per cent using lights -----	30.0	27.2	28.6	
Per cent market eggs -----	88.5	89.8	89.1	
Per cent hatching eggs -----	11.5	10.2	10.9	
Avg. price market eggs (Cents) -	29.3	28.3	28.8	
Avg. price hatching eggs (Cents)	44.5	43.2	43.9	
Per cent number one eggs -----	74.1	69.3	71.7	
Per cent number two eggs -----	21.8	26.6	24.1	
Per cent number three eggs -----	4.1	4.1	4.2	
Avg. price cull hens (Cents) ---	68.9	57.5	60.5	
Pounds scratch per hen -----	42.2	40.0	41.1	
Pounds mash per hen -----	45.2	36.5	41.2	
Total pounds feed per hen -----	87.4	76.5	82.3	
Cost scratch per hen (Dollar) --	1.04	.97	1.01	
Cost mash per hen (Dollar) -----	1.23	1.00	1.12	
Total cost per hen (Dollar) -----	2.27	1.97	2.13	
Cost scratch per cwt. -----	2.48	2.42	2.44	
Cost mash per cwt. -----	2.72	2.75	2.73	
Cost all feed per cwt. -----	2.60	2.58	2.59	
Per cent earned on investment ---	28.9	4.7	15.7	
Rate earned per hour (Cents) ---	101.8	36.0	72.1	





### Some Results of Record Work

What are some of the worth-while things that are being derived from the poultry enterprise record work? Briefly, this work has supplied a need of poultrymen for a simple farm-account system that will enable a practical analysis of their business. It is making available standards of performance, showing the wide variation in returns from farm to farm and the reasons for such variation. It supplies an index of the relative efficiency of different farms and different practices and shows advantages and disadvantages of competing areas in poultry production. In addition, it helps the county agent to obtain a sound basis for all poultry-extension teaching.

Records from 144 Massachusetts poultrymen in 1926, and 134 in 1927 were the basis for a poultry-management study published in their State Bulletin 251. A few summary statements as follows are taken from that bulletin:

"Labor return per bird increased about 35 cents for each increase of one dozen eggs in the average production per bird. Average egg production per bird was the most important factor influencing profits per bird.

"Labor return per bird increased 28 cents in 1926 and 35 cents in 1927 for each increase of one dollar in receipts other than from market eggs. Such receipts included those from hatching eggs, baby chicks, broilers, roasters, and so forth. These supplementary lines contribute to profitable poultry keeping.

"When the number of birds in the flock was reduced after November 1 so that the plant was operating below full capacity, labor return per bird decreased about 36 cents with each 10 per cent reduction in number of birds.

"A 5-cent difference in average price received for eggs was related to a difference in labor return per bird of 19 cents in 1926 and 33 cents in 1927.

"Fall egg production increased labor return per bird through its relation to average price received for eggs and annual egg production per bird."

Some of the benefits of the poultry-record work can perhaps be more specifically yet briefly stated by quoting from a recent report of Mr. L. W. Fluharty, extension economist in farm management in California.

"It is very difficult," says Mr. Fluharty, "for me to give you a statement regarding the uses which these records have fulfilled. We do know, however, that they are having a very definite effect upon our poultry-management problems.





"A survey conducted in Sonoma County in 1927 showed that within a year's time after the first study in that county was finished, 30 of our 38 cooperators have changed management practices. There was, of course, no way of measuring spread of influence from general meetings and office calls where results of the records were used.

"A few years ago it was the general opinion of poultry keepers, as well as many of our poultry specialists, that high egg production in a flock resulted in high mortality. Similar flocks in Sonoma County were also the ones which had low mortality. In 1926 we found that the high producing correlation has been run for practically all the studies we have made since that time, with the same result. It is now quite common knowledge among the poultrymen that it is not necessary to have high mortality in high-producing flocks.

"The use of electric lights has also decreased very markedly among our poultry people since the beginning of our enterprise-efficiency studies. A number of correlations showed that there was no value in this method of handling poultry.

"We have had a rather marked change in feeding ideas. Tendency is now toward a ration composed with a larger percentage of grain than has been formerly recommended.

"There has also been a marked change in the percentage of old hens replaced by pullets. Many of our poultrymen did not replace more than about 30 per cent with pullets before we began these studies. At the present time the common practice is to replace 50 to 65 per cent of old hens with pullets, as it was found from the records that this was the proper practice.

"We have demonstrated that the time of year when eggs are laid has a very important bearing on profits. This matter has been used a great deal by our farm advisers for the purpose of impressing poultrymen with the necessity of purchasing chicks at the proper time of the year, and of feeding and culling correctly.

"In a recent meeting held in Sonoma County, one of our cooperators who in 1926 lost money in the poultry business declared that because of following the recommendations of the farm adviser in regard to this matter, he had changed his loss into a \$1,900 profit."

This work has made rapid growth in California over the past four years. In 1925, 74 records were kept in three counties, and in 1928, 487 records in 19 counties. Poultry economic information was discussed at 142 meetings in 30 California counties attended by 6,449 persons in 1928. This poultry-record project is the real connecting link between the poultry and farm-management specialists' work in several of the States.





### Extension-Program Building

This brings us specifically to a consideration of the use of these facts in program building. The facts previously enumerated should be useful in dealing with problems of the successful organization and operation of a poultry farm, singly or collectively. The emphasis on different facts will vary with their relation to the specific problem. For these reasons, such facts when properly analyzed and related to production information are in continuous use.

All States are making increased use of correlated production and economic facts in developing agricultural extension programs. In Illinois during last year, information from all the departments at the agricultural college was assembled and analyzed, and during the fall months all specialists participated in conducting regional agricultural adjustment meetings in each of the types of farming areas of the State. Following these regional meetings, county agents in more than 30 counties conducted local meetings. This last spring, meetings were again held in these regions at which the agricultural outlook information was made a large part of the program. Many other States have this or a similar method of work under way.

### The Jefferson County Program

One of the most recent county publications dealing with program-building activities comes from Jefferson County, New York. It is entitled "Improve Your Agriculture" and deals with the long-time adjustments needed in Jefferson County to meet changing conditions. "This program," says the report, "is recommended to the farm bureau as a basis for a long-time agricultural program for Jefferson County." The suggestions regarding poultry in this report are as follows:

"Fresh eggs of uniformly high quality command a high enough premium in the New York market to justify the greater costs of production on commercial poultry farms. Jefferson County farmers have a distinct advantage over more distant producing regions in the production of such a perishable product as fresh eggs. With increasing demands of near-by growing cities, long-time prospects for efficient commercial egg producers in New York appear satisfactory.

"For those Jefferson County farmers who are willing to take the necessary pains to obtain a uniform production of high-quality eggs, a moderate increase in poultry is an excellent way of increasing the farm income.

"All farmers will find it worth while to keep at least enough poultry to supply the family with eggs and poultry meat. Even though their flocks are small, such producers should learn to cull their hens and should feed balanced rations to them.





"Farmers buying day-old chicks should purchase them locally and not run the danger of loss from long-distance shipments or unscrupulous hatcheries.

"At the present time, Jefferson County seems to be overcrowded with incubators of large capacity for custom hatchings. Persons expecting to enter this business or to enlarge their capacity should proceed cautiously."

#### A Wider Projection of Facts Needed in Most States

All approved methods of work now in use by the Extension Service can be applied in the dissemination of economic information the same as other subject matter. We realize, however, that before farmers understand the application of this information dealing with how much to produce and when to sell, as well as they understand the production side, that it will be necessary for us to go through the same stages of development that you have gone through with in your program. In most ways, the methods to be used will be comparable with those you use.

With the dissemination of much of this information, I see nothing more involved than the problem of teaching the practice of culling successfully, and you have done splendid work along that line. With as thorough work in helping farmers analyze and interpret these facts as has been done in teaching farmers how to cull poultry, I believe equal degrees of progress should be attained.

In conclusion, it is apparent that the soundest approach to the problem of acquainting farmers with the losses occurring, when too rapid or ill-advised changes in their business are made, is through this channel of assembling and utilizing all available economic and production information as a basis of program building. Such facts are being made available for other commodities the same as for poultry, but in the past we have not always correlated and used these facts to the extent that the importance of our work warrants.

The adjustment program and the efficiency program in agricultural improvement should be conducted jointly and there is a growing appreciation of this fact.

